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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/050,236	01/15/2002	Dimitar V. Dimitrov	I69.12-0526	6372

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EXAMINER	
TUGBANG, ANTHONY D	
ART UNIT	**PAPER NUMBER**
3729	

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/050,236	DIMITROV ET AL.	
	Examiner	Art Unit	
	A. Dexter Tugbang	3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 March 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) *9-32* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The applicant(s) amendment filed on 3/24/05 has been fully considered and made of record.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Election/Restrictions

3. Claims 9-20 continue to stand as being withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 10/6/04.

In the response filed on 3/24/05, the applicant(s) again traverse the restriction requirement dated on 9/8/04. The traversal is on the ground(s) that the language of the preamble in Group I, namely Claims 2 and 3, was ignored. This is not found persuasive because the preamble of Group I, as well as all of the limitations of at least Claims 1, 2 and 3 of Group I, were given full consideration. However, to further clarify, the limitations of Group I (i.e. at least Claims 1-3) are in no way the same scope as Group II (i.e. Claim 9). One such example of this is that Group II recites "a stack of magnetoresistive sensor layers" (line 3 of Claim 9), which is nowhere recited in Group I. Group I does not even recite any photoresist layer in Claim 1 and while a "first photoresist layer" is recited in Group I (at line 4 of dependent Claim 2), this "first photoresist layer" is never removed, in which it is explicitly required to be removed in Group II

(at Claim 9, line 9). So again, the examiner reiterates that Group I and Group II are clearly distinct and independent inventions, each requiring different and separate lines of patentability.

4. The addition of new Claims 21-32 has necessitated the following restriction requirement.

5. Restriction to one of the following inventions is required under 35 U.S.C. 121:

II. Claims 2-5, drawn to a magnetoresistive reader with first and second photoresist layers, classified in class 29, subclass 603.07.

III. Claims 21-32, drawn to forming a magnetoresistive reader without first and second photoresist layers, classified in class 29, subclass 603.12.

The inventions are distinct, each from the other because of the following reasons:

6. Inventions of Groups II and III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, the invention of Group III has separate utility such as removing the first and second photoresist layers, not required in Group II. Group II has separate utility in that the first and second photoresist layers are layers that are formed with the final product of the magnetoresistive reader. See MPEP § 806.05(d).

7. Because these inventions are distinct for the reasons given above and the search required for Group III is not required for Group II, restriction for examination purposes as indicated is proper.

8. Claim 1 link(s) the inventions of Groups II and III. The restriction requirement between the linked inventions is subject to the nonallowance of the linking claim(s), claim 1. Upon the allowance of the linking claim(s), the restriction requirement as to the linked inventions shall be withdrawn and any claim(s) depending from or otherwise including all the limitations of the

allowable linking claim(s) will be entitled to examination in the instant application. Applicant(s) are advised that if any such claim(s) depending from or including all the limitations of the allowable linking claim(s) is/are presented in a continuation or divisional application, the claims of the continuation or divisional application may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application. Where a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. *In re Ziegler*, 44 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

It is noted that Claims 6-8 will be examined with linking Claim 1 as there would be no burdensome search on Claims 6-8.

9. Newly submitted Claims 21-32 are directed to an invention that is independent or distinct from the invention originally claimed for reasons set forth above.

Since applicant has received an action on the merits for the originally presented invention (Group II), this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, Claims 21-32 have been withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 102

10. The rejections below are maintained and hereby repeated merely for the applicant(s) convenience.

11. Claims 1-4 are rejected under 35 U.S.C. 102(e) as being anticipated by Lin et al 6,262,869.

Lin discloses a method of forming a magnetoresistive reader comprising: defining a stripe height back edge (back edge of the top surface of 312 in Fig. 19G) of a magnetoresistive sensor of the magnetoresistive reader; and then defining a reader width of the magnetoresistive sensor (see sequence of Figures 19H-19I).

Regarding Claim(s) 2-3, Lin further teaches: depositing magnetoresistive sensor layers (302, 304, 306, 308, 310, 312); selective patterning a first photoresist layer 364 on the sensor layers, the first photoresist layer leaving an exposed first region (region to the right of 364 in Fig. 19H) of the magnetoresistive sensor layers; selective patterning a second photoresist layer 362 on the sensor layers, the second photoresist layer leaving an exposed second region (region to the left of 362 in Fig. 19H) of the magnetoresistive sensor layers; and removing the exposed first region and exposed second region of the magnetoresistive sensor layers.

Regarding Claim(s) 4, the front edge of the top surface of 312 in Fig. 19G is read as the "stripe height front edge" that is defined.

Claim Rejections - 35 USC § 103

12. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al in view of Hiner et al 6,032,353.

Lin discloses the claimed manufacturing method as relied upon above in Claims 1-4. Line does not appear to mention that the air bearing surface ABS is lapped.

Hiner suggests that lapping the ABS provides a smooth surface during operation of the magnetoresistive head (see col. 7, lines 5-8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Lin by adding the step of lapping, as taught by Lin, to positively providing an ABS with a smooth surface during operation.

13. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al in view of Gill et al 6,055,136.

Lin discloses the claimed manufacturing method as relied upon above in Claims 1-4, further including depositing current contacts 340, 342, forming a gap layer 78 and forming a top shield layer 82, where the current contacts are substantially level and the top shield is substantially planar (see Figs. 6 and 7).

Line does not appear to mention as to whether or not the gap layer and shield layer are deposited.

Gill shows that it is known to form a gap layer 53 by depositing and form a top shield layer 55 by depositing (see col. 4, lines 40-53), all of which is an alternative means to pattern the gap and shield layers.

It would have been obvious to one of ordinary skill in the art at the time the invention was made have modified the method of Lin by depositing the gap and top shield layers, as taught by Gill, to positively provide an alternative means to both form and pattern the gap and shield layers.

Response to Arguments

14. Applicant's arguments filed 3/24/05 have been fully considered but they are not persuasive.

In regards to the merits of all of the applied art above, the applicant(s) believe that none of them teach "depositing a stripe height back edge of a magnetoresistive sensor of the magnetoresistive reader" (lines 3-4 of Claim 1), as the applicant(s) appear to be saying that the examiner has ignored the terms of "stripe height...of a magnetoresistive sensor".

The examiner most respectfully disagrees.

Lin recites that "...A third set of processes for patterning a sensor stripe height (distance between the ABS and recessed edge of the spin valve sensor) continues...." (at lines 55-57 of col. 12). The examiner's position is that what Lin discusses after that, i.e. ion milling and bilayer photoresist removal, are continuing and alternative processes to define the stripe height. So this **does not exclude** the processes of defining the stripe height shown in Figures 19A-19N. One process of defining the stripe height is shown in Figure 19G, with which the examiner relied upon in the above rejection. The stripe height, in one process, is defined by the vertical height of depositing all of sensor layers 302, 304, 306, 308, 310, 312 (in Fig. 19G) in relation to the ABS (see col. 12, lines 23-26). Capping layer 312 is the final layer of the magnetoresistive sensor so the back edge of the top surface of this layer defines the stripe height of the magnetoresistive sensor. Figure 19N of Lin shows the final structure of the magnetoresistive reader as this includes capping layer 312.

So for the applicant(s) to say that the back edge of capping layer 312 is not particular to anyone MR sensor being formed is simply incorrect as Lin clearly shows that capping layer 312, as well as the other layers 302, 304, 306, 308, 310, determine and define the structure of the MR sensor, inclusive of the stripe height back edge of the MR sensor.

Subsequently, the MR reader width, which includes defining the track width, is defined by Lin in Figures 198H through 19I. All of the processes of Lin form the "stripe height back edge" and "reader width" of the MR sensor. Thus, the examiner maintains that Lin fully anticipates the limitations as claimed in Claims 1-4. It appears that further limitations in at least Claim 1 are needed in order to avoid Lin et al.

Conclusion

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Dexter Tugbang whose telephone number is 571-272-4570. The examiner can normally be reached on Monday - Friday 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A. Dexter Tugbang
Primary Examiner
Art Unit 3729

June 6, 2005